16	135	(((wafer or substrate) with (spaced or space) with (pedestal or chuck)) and temperature and target) and @ad<20030513) and (depositing or deposition)	USPAT; US-PGPUB	2004/09/22 16:33
17	91	((((wafer or substrate) with (spaced or space) with (pedestal or chuck)) and temperature and target) and @ad<20030513) and (depositing or deposition)) and controller	USPAT; US-PGPUB	2004/09/22 16:33
18	39	((wafer or substrate) with (spaced adj apart) with (pedestal or chuck)) and temperature and target	USPAT; US-PGPUB	2004/09/22 16:40
19	38	(((wafer or substrate) with (spaced adj apart) with (pedestal or chuck)) and temperature and target) and @ad<20030513	USPAT; US-PGPUB	2004/09/22 16:41

L Number	Hits	Search Text	DB	Time stamp
1	988	chuck and (wafer or substrate) and temperature and depositing and target	USPAT; US-PGPUB	2004/09/22 14:15
2	923	(chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513	USPAT; US-PGPUB	2004/09/22 15:25
3	479	((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles	USPAT; US-PGPUB	2004/09/22 14:16
4	7	(((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) and (target with impinging)	USPAT; US-PGPUB	2004/09/22 14:20
5	472	(((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) not ((((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) and (target with impinging))	USPAT; US-PGPUB	2004/09/22 14:20
6	110	((((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) not ((((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) and (target with impinging))) and (controller same temperature)	USPAT; US-PGPUB	2004/09/22 15:18
7	83	((((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) not ((((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and particles) and (target with impinging))) and (controller with temperature)	USPAT; US-PGPUB	2004/09/22 14:29
8	116	((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and (controller with temperature)	USPAT; US-PGPUB	2004/09/22 14:30
9	93	(((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and (controller with temperature)) and (aluminum)	USPAT; US-PGPUB	2004/09/22 15:16
10	180	((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and (controller same temperature)	USPAT; US-PGPUB	2004/09/22 15:18
11	64	(((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and (controller same temperature)) not (((chuck and (wafer or substrate) and temperature and depositing and target) and @ad<20030513) and (controller with temperature))	USPAT; US-PGPUB	2004/09/22 15:25
12	395	((depositing or deposition) with apparatus) and (wafer or substrate) and (controller same temperature) and (applied adj materials) and @ad<20030513	USPAT; US-PGPUB	2004/09/22 15:28
13	215	(((depositing or deposition) with apparatus) and (wafer or substrate) and (controller same temperature) and (applied adj materials) and @ad<20030513) and target	USPAT; US-PGPUB	2004/09/22 16:29
14	178	((wafer or substrate) with (spaced or space) with (pedestal or chuck)) and temperature and target	USPAT; US-PGPUB	2004/09/22 16:39
15	169	(((wafer or substrate) with (spaced or space) with (pedestal or chuck)) and temperature and target) and @ad<20030513	USPAT; US-PGPUB	2004/09/22 16:41

DOCUMENT-IDENTIFIER: US 20020064952 A1

TITLE: Staged aluminum deposition process for filling vias

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Claims Text - CLTX (28):

27. A **controller** for a multi-chamber processing apparatus for performing physical vapor deposition processes, wherein the **controller** contains programming which, when executed, configures the **controller** to perform operations of forming a feature on a substrate, the operations comprising: depositing a barrier/wetting layer over the surfaces of an aperture in the substrate; physical vapor depositing a conformal first metal layer over the surface of the barrier/wetting layer without capping or filling the aperture at a chamber pressure less than about 1 milliTorr; and physical vapor depositing a second metal layer on the conformal first metal layer at a **temperature** below about 350.degree. C.

Claims Text - CLTX (30):

29. The **controller** of claim 28, wherein reflowing the second metal layer occurs at a **temperature** less than about 500.degree. C.

Claims Text - CLTX (31):

30. The **controller** of claim 28, wherein depositing the conformal first metal layer occurs at about room **temperature**.

US-PAT-NO: 6784096

DOCUMENT-IDENTIFIER: US 6784096 B2

TITLE: Methods and apparatus for forming barrier layers in high aspect ratio vias

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Detailed Description Text - DETX (45):

A **controller** 330 is provided to control operation of the chamber 300. The **controller** 330 is operatively connected to control the DC power supply 322, the first mass flow **controller** 326, the second mass flow **controller** 329, the pump 328, and the RF power supply 332. The **controller** 330 similarly may be coupled to control the position and/or **temperature** of the pedestal 318. For example, the **controller** 330 may control the distance between the pedestal 318 and the target 314, as well as heating and/or cooling of the pedestal 318. The **controller** 330 may be implemented as the **controller** 140 of the system 100 of FIG. 1 or as a separate **controller** (which may or may not communicate with the **controller** 140).

Detailed Description Text - DETX (62):

A working gas such as argon is supplied into the chamber 400 from a gas source 468 through a mass flow **controller** 470. A vacuum pumping system 472 maintains the chamber at a reduced pressure, typically a base pressure of about 10.sup.-8 Torr. An RF power supply 474 RF biases the pedestal electrode 454 through an isolation capacitor (not shown), to produce a negative DC self-bias. Alternatively, the RF power supply may be omitted and the

pedestal electrode
454 may be allowed to float to develop a negative
self-bias. A **controller** 476
regulates the power supplies 460, 474, mass flow **controller**
470, and vacuum
system 472 (e.g., according to a sputtering recipe stored
in the **controller**
476). The **controller** 476 also may control the position
and/or **temperature** of
the pedestal electrode 454. The **controller** 476 may be
implemented as the
controller 140 of the system 100 of FIG. 1 or as a separate
controller (which
may or may not communicate with the **controller** 140).

US-PAT-NO: 6221168

DOCUMENT-IDENTIFIER: US 6221168 B1

TITLE: HF/IPA based process for removing undesired oxides form a substrate

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Detailed Description Text - DETX (9):

A schematic of a suitable gas delivery system is shown in FIG. 3. HF gas source 40 is connected to mass flow **controller** (MFC) 52 by pipe 46. Similarly, IPA source 42 is connected to MFC 54 by pipe 48, and N.sub.2 source 44 is connected to MFC 56 by pipe 50. Pipe 46 may be a 0.25 inch diameter pipe of at least 12 inches in length. Suitably, it is heated to at least 70.degree. C. in accord with the invention described in pending U.S. patent application Ser. No. 08/975,033, incorporated herein by reference. MFC 52 is also heated to 70.degree. C. IPA source 42 is suitably heated to at least 60.degree. C., while pipe 48 and MFC 54 are heated to 85.degree. C. N.sub.2 source 44, MFC 56 and pipe 50 may be at any **temperature** convenient for processing. The output of all three MFC's is mixed in pipe 58. Pipe 58 should be at a higher **temperature** than any of the initial gas sources 40, 42, or 44. Preferably pipe 58 is heated to 65.degree. C. Pipe 58 is connected directly to gas inlet 30 in FIG. 1 or gas inlet 112 in FIG. 5 below.

Detailed Description Text - DETX (22):

A few gases, however, such as hydrofluoric acid, pose special problems because the thermodynamic quantities a mass flow **controller**

measures do not have the typical correlation with flow rate. This is due to the fact that HF has an association number greater than 1 for a wide range of temperatures and pressures far from their critical points. For example, at ambient **temperature** and pressure, HF has an association number near 3.5. This means that on average an HF molecule is a member of a cluster involving 3 to 4 HF molecules. The association number of HF is also a strong function of **temperature** and pressure under these conditions. This leads to the difficulties in monitoring HF flows in the usual way. Small changes in **temperature** and pressure can lead to measurable changes in the thermodynamic quantities a mass flow **controller** monitors, which can result in inaccurate and unreproducible measurements of the amount of HF gas flow.

Detailed Description Text - DETX (25):

Altering the **temperature** of the pipe is preferably accomplished using some form of heat tracing. Heat tracing involves applying a heating source, such as linear resistive heating tape, along the entire length of the exterior of an object to be heated and then insulating the object/heater combination. The heating source may be controlled by a single feedback loop for the entire heat tracing, or the heat tracing may be partitioned with an independent feedback loop controlling the **temperature** in different sections. This latter method allows for finer control of the **temperature** over large areas of heat tracing. A suitable thermocouple for monitoring the **temperature** of the line and providing information for the feedback loop is a type J thermocouple. Both the linear resistive heating tape and the type J thermocouple are available from Omega Engineering, Inc. of Stamford, Conn. An example of

a suitable
temperature controller is the model CN3402 **controller** available from Omega Engineering, Inc. Alternatively, other heaters such as heating coils or heat lamps may be used to heat the reservoir. In this embodiment, gas which is flowing through the pipe must spend enough time in the reservoir to attain a substantially unpolymerized state.